

Claims

1. A method for point-to-point protocol (PPP) link handoff comprising:
communicating, by a source access router (AR), with a remote unit
5 via a PPP communication link, wherein PPP context information is
associated with the PPP communication link;
determining that a PPP link handoff from the source AR to a target
AR should occur; and
conveying the PPP context information to the target AR.
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2. The method of claim 1, further comprising conveying traffic
information via a tunnel between the source AR and the target AR.
3. The method of claim 2, wherein conveying the PPP context
15 information and conveying the traffic information occur concurrently.
4. The method of claim 2, further comprising:
determining when the tunnel between the source AR and the target
AR will expire based on a tunnel lifetime; and
20 extending the lifetime of the tunnel in order to convey the PPP
context information.
5. The method of claim 1, wherein conveying the PPP context
information comprises conveying the PPP context information when a
25 period of low remote unit data activity begins.
6. The method of claim 1, wherein PPP context information comprises
timer information used for PPP operation.

7. The method of claim 1, wherein conveying the PPP context information comprises conveying only types of PPP context information that are applicable to the target AR.
- 5 8. The method of claim 7, further comprising requesting, by the source AR, target AR capabilities from the target AR.
9. The method of claim 7, further comprising sending, by the source AR, an indication of which types of context information are being
10 conveyed.
10. The method of claim 7, further comprising maintaining, by the source AR, a record of the target AR's capabilities.
- 15 11. The method of claim 7, wherein conveying the PPP context information comprises sending parameters selected from the group consisting of SYNC_MAP, PROTOCOL_FIELD_COMPRESSION, ADDRESS FIELD COMPRESSION, MRU, Magic number, Van Jacobson Header Compression, AUTH_TYPE, the target AR Internet Protocol (IP)
20 Address, Mobile IP (MIP) Flag, PPP in-activity timer, and PPP session timer.
12. The method of claim 7, wherein conveying the PPP context information comprises sending only link control parameters and network
25 control parameters.
13. The method of claim 7, wherein conveying the PPP context information comprises sending only link control parameters and authentication parameters.

14. The method of claim 13, wherein a header compression scheme supported by the target AR is not known by the source AR to match a header compression scheme used by the source AR for the PPP communication link.

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15. The method of claim 7, wherein conveying the PPP context information comprises sending link control parameters, authentication parameters, and network control parameters.

10 16. The method of claim 15, wherein a header compression scheme supported by the target AR is known by the source AR to match a header compression scheme used by the source AR for the PPP communication link.

17. A method for point-to-point protocol (PPP) link handoff comprising:
receiving, by a target access router (AR), PPP context information
from a source AR; and
establishing, by the target AR, a PPP link between the target AR
5 and a remote unit using the PPP context information.
18. The method of claim 17, further comprising negotiating, by the
target AR with the remote unit, PPP parameters not received by the target
AR from the source AR.
- 10 19. The method of claim 18, further comprising:
determining that at least a portion of the PPP context information is
not applicable to the target AR; and
negotiating, by the target AR with the remote unit, PPP parameters
15 corresponding to the PPP context information determined to not be
applicable to the target AR.
20. The method of claim 17, further comprising sending, by the target
AR, capabilities of the target AR to the source AR.
- 20 21. The method of claim 17, wherein the beginning of a period of low
remote unit data activity triggers establishing the PPP link.
22. The method of claim 17, further comprising receiving traffic
25 information via a tunnel between the source AR and the target AR.
23. The method of claim 22, further comprising determining when the
tunnel will expire based on a tunnel lifetime, wherein establishing the PPP
link comprises establishing the PPP link based on when the tunnel will
30 expire.

24. The method of claim 22, further comprising determining when the tunnel will expire based on a tunnel lifetime and extending the lifetime of the tunnel in order to establish the PPP link before the tunnel expires.

5 25. The method of claim 22, further comprising:
establishing a network layer link between the target AR and the remote unit using the PPP link.

10 26. The method of claim 25, further comprising:
tearing down the tunnel between the source AR and target AR after establishing the network layer link.

27. A source access router (AR) comprising:

a network interface; and

a processor, communicatively coupled to the network interface, adapted to communicate with a remote unit via a PPP communication link via the network interface, wherein PPP context information is associated with the PPP communication link, adapted to determine that a PPP link handoff from the source AR to a target AR should occur, and adapted to convey the PPP context information to a target AR via the network interface.

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28. The source AR of claim 27, the processor is further adapted to convey traffic information via a tunnel between the AR and the target AR.

29. A target access router (AR) comprising:
a network interface; and
a processor, communicatively coupled to the network interface, adapted to receive, via the network interface, PPP context information from a source AR and adapted to establish, via the network interface, a PPP link between the target AR and a remote unit using the PPP context information.
30. The target AR of claim 29, the processor is further adapted to negotiate, with the remote unit via the network interface, PPP parameters not received by the target AR from the source AR.
31. The target AR of claim 29, wherein the target AR comprises a packet data serving node (PDSN).
32. The target AR of claim 29, wherein the target AR comprises a GPRS gateway support node (GGSN).